

In the Claims:

1-13. (Cancelled)

14. (Currently Amended) A method of growing a gallium nitride (GaN) epitaxial structure comprising:

a) depositing one or more structural epitaxial layers including a GaN buffer layer on a substrate; and

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b) depositing a thermally assisted silicon nitride passivation layer as a surface layer for passivating surface traps on the one or more structural epitaxial layers before the GaN epitaxial structure is removed from an associated growth chamber[[]], wherein active devices

are formed in the one or more structural epitaxial layers, wherein the depositing the passivation layer occurs after the depositing the one or more structural epitaxial layers step while within the growth chamber.

15. (Previously presented) The method of claim 14 wherein the depositing the passivation layer occurs immediately after the depositing the one or more structural epitaxial layers step while within the growth chamber.

16. (Original) The method of claim 14 wherein the depositing the passivation layer step is a thermally activated deposition process.

17. (Original) The method of claim 14 wherein the depositing the one or more structural epitaxial layers step comprises depositing a transitional layer on the substrate.

18. (Original) The method of claim 17 wherein the depositing the one or more structural epitaxial layers step further comprises depositing the GaN buffer layer on the transitional layer.

19. (Original) The method of claim 17 wherein the depositing the one or more structural epitaxial layers step further comprises depositing an aluminum gallium nitride (AlGaIn) Schottky layer on the GaN buffer layer.